

We Claim:

1. A multichip module for leads-on-chip mounting, comprising:

a lead-frame;

a common, contiguous part of a wafer slice disposed in said lead-frame; and

a number of semiconductor chips disposed next to one another in said lead-frame, and at least some of said semiconductor chips disposed in said lead-frame disposed on said common, contiguous part of said wafer slice.

2. The multichip module according claim 1, wherein said lead-frame has a lateral contour, and said common, contiguous part of said wafer slice has a lateral contour adapted to said lateral contour of said lead-frame.

3. The multichip module according to claim 2, wherein said lateral contour of said common, contiguous part of said wafer slice with said semiconductor chips and said lateral contour of said lead-frame are at a substantially constant distance from one another all away around.

4. The multichip module according to claim 2, wherein said lateral contour of at least one of said lead-frame and of said

common, contiguous part of said wafer slice has a shape selected from the group consisting of rectangular shapes and square shapes.

5. The multichip module according to claim 1, wherein said number of said semiconductor chips disposed on said common, contiguous part of said wafer slice is $2n$, where n is equal to a natural number greater than or equal to 1.

6. The multichip module according to claim 1,
wherein said semiconductor chips each have an upper side and bonding pads disposed on said upper side;

wherein said lead-frame has a number of leads protruding laterally into said lead-frame and said leads have free ends;

including a fastening device for fastening said free ends of said leads protruding into said lead-frame, said fastening device disposed on said upper side of individual ones of said semiconductor chips; and

including bonding connections electrically connecting said leads to corresponding ones of said bonding pads.

7. The multichip module according to claim 6, wherein said fastening device is formed of carrier tapes disposed between said upper side of said semiconductor chips and an underside of said free ends of said leads.

8. The multichip module according to claim 6, wherein said free ends of said leads have selected parts fastened to said upper side of at least two of said semiconductor chips and are electrically connected to said bonding pads of said at least two of said semiconductor chips.

9. The multichip module according to claim 8, wherein said selected parts of said free ends of said leads have branches selected from the group consisting of dovetail-shaped branches and T-shaped branches, and said branches are respectively fastened to said at least two of said semiconductor chips.

10. The multichip module according to claim 1, wherein said free ends of said leads are one of mirror symmetric and rotational symmetric in their placement in said lead-frame.

11. The multichip module according to claim 5, wherein said number n is equal to 1.

12. The multichip module according to claim 5, wherein n is equal to 2.

13. The multichip module according to claim 5, wherein n is equal to 3.

14. The multichip module according to claim 5, wherein n is equal to 4.

15. The multichip module according to claim 7, wherein said carrier tapes are formed from polyimide and are coated on both sides with a thermoplastic adhesive.

16. A method for producing a multichip module for leads-on-chip mounting, which comprises the steps of:

mounting a number of semiconductor chips on a wafer slice next to one another;

removing a part of the wafer slice having the semiconductor chips from the wafer slice resulting in a common, contiguous part; and

inserting the common, contiguous part in a lead-frame.